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| 10/807,885 | 03/24/2004 | Ratnam Rama | 22010-202 | 5591 |
| 52450 7590 04/23/2007 KRIEG DEVAULT LLP ONE INDIANA SQUARE SUITE 2800 INDIANAPOLIS, IN 46204-2079 | | | EXAMINER CHAU, COREY P | |
| | | | ART UNIT 2615 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | | MAIL DATE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|-----------------|--------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/807,885 | RAMA ET AL. | |
| | Examiner | Art Unit | |
| | Corey P. Chau | 2615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The declaration filed on 12/26/2006 under 37 CFR 1.131 is sufficient to overcome the Kantor et al. and Karjalainen et al. reference.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-3, 5, 7, 10-13, 15, 18-21, 23-24, 26-29, and 32-35 are rejected under 35 U.S.C. 102(a) as being anticipated by USPN 7123727 to Elko et al. (hereafter as Elko).
4. Regarding Claim 1, Elko discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sensor signal
(abstract; Figs. 1 and 7; column 6, line 55 to column 7, line 3);

generating data with the sensor signal in accordance with a maximum likelihood estimator (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 3); and

filtering the data with an order-statistics filter to provide an estimate of reverberation time (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

5. Regarding Claim 2, Elko discloses iteratively determining a decay time parameter and a power parameter during execution of said generating (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

6. Regarding Claim 3, Elko discloses providing the reverberation time to one or more of a hearing assistance data processing routine, a voice recognition data processing routine, a hands-free telephony data processing routine, a teleconference data processing routine, and a sound level evaluation data processing routine (abstract; Figs. 1 and 7; column 1, lines 18-62).

7. Regarding Claim 5, Elko discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sound signal
(abstract; Figs. 1 and 7; column 6, line 55 to column 7, line 3);

iteratively determining two or more values with a maximum likelihood function to evaluate one or more reverberation characteristics of an acoustic environment, one of the values corresponding to a time-constant parameter and another of the values

Art Unit: 2615

corresponding to a diffusive power parameter (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42); and

providing an estimate corresponding to reverberation time of the acoustic environment (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

8. Claim 7 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

9. Claim 10 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

10. Regarding Claim 11, Elko discloses rein said selecting includes filtering the estimations (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

11. Regarding Claim 12, Elko discloses wherein said filtering is performed with an order-statistics filter (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

12. Regarding Claim 13, Elko discloses said determining includes iteratively calculating each of at least two values, a first one of the values corresponding to a decay time and a second one of the values corresponding to diffusive power (abstract; Figs. 1 and 7; column 6, lines 5-16; column 6, line 55 to column 7, line 42).

13. Claim 15 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

Art Unit: 2615

14. Claim 18 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

15. All elements of Claim 19 are comprehended by Claim 18. Claim 19 is reasons for the reason stated above apropos to Claim 18.

16. All elements of Claim 20 are comprehended by Claim 18. Claim 20 is reasons for the reason stated above apropos to Claim 18.

17. Claim 21 is essentially similar to Claims 2 and 5 and is rejected for the reasons stated above apropos to Claims 2 and 5.

18. Claim 23 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

19. Claim 24 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

20. Claim 26 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

21. Claim 27 is essentially similar to Claim 20 and is rejected for the reasons stated above apropos to Claim 20.

22. All elements of Claim 28 are comprehended by Claim 26. Claim 28 is rejected for the reasons stated above apropos to Claim 26.

23. Claim 29 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

24. Claim 32 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

Art Unit: 2615

25. Regarding Claim 33, Elko discloses the logic includes a number of software instructions and the device includes a computer-readable memory storing the software instructions (abstract; Figs. 1 and 7; column 11, lines 25-52).

26. Regarding Claim 34, Elko discloses the device includes one or more parts of a computer network and the logic is encoded in one or more signals by the device (abstract; Figs. 1 and 7; column 11, lines 25-52).

27. Claim 35 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

28. Claims 1-16, 18-24, 26-30, and 32-35 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 7039199 to Rui.

29. Regarding Claim 1, Rui discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sensor signal
(abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10);

generating data with the sensor signal in accordance with a maximum likelihood estimator (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15); and

filtering the data with an order-statistics filter to provide an estimate of reverberation time (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15; column 21, lines 3-31).

30. Regarding Claim 2, Rui discloses iteratively determining a decay time parameter and a power parameter during execution of said generating (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15).

31. Regarding Claim 3, Rui discloses providing the reverberation time to one or more of a hearing assistance data processing routine, a voice recognition data processing routine, a hands-free telephony data processing routine, a teleconference data processing routine, and a sound level evaluation data processing routine (abstract; Figs. 1-4 and 12; column 8, lines 6-37).

32. Regarding Claim 4, Rui discloses said generating includes calculating a number of reverberation time parameter estimations with the maximum likelihood estimator, the estimations each being calculated as a function of a sequence of sound observations over a different time window (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 12, lines 42-50; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15; column 20, lines 13-32).

33. Regarding Claim 5, Rui discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sound signal
(abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10);

iteratively determining two or more values with a maximum likelihood function to evaluate one or more reverberation characteristics of an acoustic environment, one of the values corresponding to a time-constant parameter and another of the values corresponding to a diffusive power parameter (abstract; Figs. 1-4 and 12; column 11,

Art Unit: 2615

line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15); and

providing an estimate corresponding to reverberation time of the acoustic environment (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15).

34. Regarding Claim 6, Rui discloses said iteratively determining is performed for each of a number of different frequency ranges of the sound and includes calculating a reverberation time estimate for each of the different frequency ranges (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 12, lines 42-50; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15; column 20, lines 13-32).

35. Claim 7 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

36. Claim 8 is essentially similar to Claim 4 and is rejected for the reasons stated above apropos to Claim 4.

37. Regarding Claim 9, Rui discloses said providing includes filtering the reverberation time estimations with an order-statistics filter to select the estimate corresponding to reverberation of the acoustic environment (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15).

38. Claim 10 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

Art Unit: 2615

39. Regarding Claim 11, Rui discloses said selecting includes filtering the estimations (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15; column 21, lines 3-31).

40. Regarding Claim 12, Rui discloses said filtering is performed with an order-statistics filter (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15; column 21, lines 3-31).

41. Regarding Claim 13, Rui discloses said determining includes iteratively calculating each of at least two values, a first one of the values corresponding to a decay time and a second one of the values corresponding to diffusive power (abstract; Figs. 1-4 and 12; column 11, line 52 to column 12, line 10; column 15, line 55 to column 16, line 36; column 18, line 66 to column 19, line 15).

42. Claim 14 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

43. Claim 15 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

44. Claim 16 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

45. Claim 18 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

Art Unit: 2615

46. All elements of Claim 19 are comprehended by Claim 18. Claim 19 is reasons for the reason stated above apropos to Claim 18.

47. All elements of Claim 20 are comprehended by Claim 18. Claim 20 is reasons for the reason stated above apropos to Claim 18.

48. Claim 21 is essentially similar to Claims 2 and 5 and is rejected for the reasons stated above apropos to Claims 2 and 5.

49. Claim 22 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

50. Claim 23 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

51. Claim 24 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

52. Claim 26 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

53. Claim 27 is essentially similar to Claim 20 and is rejected for the reasons stated above apropos to Claim 20.

54. All elements of Claim 28 are comprehended by Claim 26. Claim 28 is rejected for the reasons stated above apropos to Claim 26.

55. Claim 29 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

56. Claim 30 is essentially similar to Claims 1 and 4 and is rejected for the reasons stated above apropos to Claims 1 and 4.

Art Unit: 2615

57. Claim 32 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

58. Regarding Claim 33, Rui discloses the logic includes a number of software instructions and the device includes a computer-readable memory storing the software instructions (abstract; Figs. 1-4 and 12; column 9, line 7 to column 11, line 47).

59. Regarding Claim 34, Rui discloses the device includes one or more parts of a computer network and the logic is encoded in one or more signals by the device (abstract; Figs. 1-4 and 12; column 9, line 7 to column 11, line 47).

60. Claim 35 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

61. Claims 1-3, 5, 7, 9-13, 15, 18-21, 23-24, 26-29, 32, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 6044336 to Marmarelis et al. (hereafter as Marmarelis).

62. Regarding Claim 1, Marmarelis discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sensor signal
(abstract; Fig. 1);

generating data with the sensor signal in accordance with a maximum likelihood estimator (abstract; Fig. 1; column 4, line 10 to column 5, line 13); and

filtering the data with an order-statistics filter to provide an estimate of reverberation time (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

Art Unit: 2615

63. Regarding Claim 2, Marmarelis discloses iteratively determining a decay time parameter and a power parameter during execution of said generating (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

64. Regarding Claim 3, Marmarelis discloses providing the reverberation time to one or more of a hearing assistance data processing routine, a voice recognition data processing routine, a hands-free telephony data processing routine, a teleconference data processing routine, and a sound level evaluation data processing routine (abstract; Fig. 1).

65. Regarding Claim 5, Marmarelis discloses a method, comprising:

detecting sound with a sensor to generate a corresponding sound signal
(abstract; Fig. 1);

iteratively determining two or more values with a maximum likelihood function to evaluate one or more reverberation characteristics of an acoustic environment, one of the values corresponding to a time-constant parameter and another of the values corresponding to a diffusive power parameter (abstract; Fig. 1; column 4, line 10 to column 5, line 13); and

providing an estimate corresponding to reverberation time of the acoustic environment (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

66. Claim 7 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

67. Regarding Claim 9, Marmarelis discloses said providing includes filtering the reverberation time estimations with an order-statistics filter to select the estimate

Art Unit: 2615

corresponding to reverberation of the acoustic environment (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

68. Claim 10 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

69. Regarding Claim 11, Marmarelis discloses said selecting includes filtering the estimations (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

70. Regarding Claim 12, Marmarelis discloses said filtering is performed with an order-statistics filter (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

71. Regarding Claim 13, Marmarelis discloses said determining includes iteratively calculating each of at least two values, a first one of the values corresponding to a decay time and a second one of the values corresponding to diffusive power (abstract; Fig. 1; column 4, line 10 to column 5, line 13).

72. Claim 15 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

73. Claim 18 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

74. All elements of Claim 19 are comprehended by Claim 18. Claim 19 is reasons for the reason stated above apropos to Claim 18.

75. All elements of Claim 20 are comprehended by Claim 18. Claim 20 is reasons for the reason stated above apropos to Claim 18.

76. Claim 21 is essentially similar to Claims 2 and 5 and is rejected for the reasons stated above apropos to Claims 2 and 5.

Art Unit: 2615

77. Claim 23 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

78. Claim 24 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

79. Claim 26 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

80. Claim 27 is essentially similar to Claim 20 and is rejected for the reasons stated above apropos to Claim 20.

81. All elements of Claim 28 are comprehended by Claim 26. Claim 28 is rejected for the reasons stated above apropos to Claim 26.

82. Claim 29 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

83. Claim 32 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10

84. Claim 35 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

Claim Rejections - 35 USC § 103

85. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

86. Claims 17, 25, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over by USPN 7039199 to Rui.

Regarding Claim 17, Rui does not expressly disclose adaptively changing the duration of the different time windows. However, it is well known in the art to adaptively changing the duration of the different time windows in order to provide flexibility to have different time windows which provide the desired results. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Rui to adaptively changing the duration of the different time windows in order to provide flexibility to have different time windows which provide the desired results.

87. Claim 25 is essentially similar to Claim 17 and is rejected for the reasons stated above apropos to Claim 17.

88. Claim 31 is essentially similar to Claims 6 and 17 and is rejected for the reasons stated above apropos to Claims 6 and 17.

Response to Arguments

89. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

90. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 6279379 to Logue et al. discloses an apparatus and methods for performing acoustical measurements.

91. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is 571-272-7514. The examiner can normally be reached on Monday-Friday, 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

April 16, 2007
CPC



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